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AMSAT NEWS SERVICE
ANS-019

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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SB SAT @ AMSAT $ANS-019.01
ANS-019 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 019.01
>From AMSAT HQ SILVER SPRING, MD.
DATE January 19, 2014
To All RADIO AMATEURS
BID: $ANS-019.01

ARRL Features "Bringing Space into the Classroom"

Bringing space into the classroom is an incredibly powerful learning experience for students. The marriage between wireless technology literacy and space literacy is a strong one that produces a portfolio of activities that can engage virtually all students at some ability and interest level.

The portfolio of activities can range from simply having a satellite prediction software package running in the back of the classroom on an old, salvaged computer, a simple receiver to collect telemetry data from orbiting satellites, to a full-up ground station to communicate with other hams via satellites, or even with the astronauts in the International Space Station through the ARISS (Amateur Radio on the International Space Station) program.

New Resources for Classroom Instruction

For an overview of recent additions of classroom resources designed to help teachers instruct students about research projects to be launched by AMSAT on its Fox satellites, view a video of a presentation by Mark Spencer, WA8SME at the 2013 AMSAT Symposium.

http://www.youtube.com/watch?v=kl8HCBEGv4Q

This library is a collection of resources designed for teachers who want to explore satellite communications with students. There are also instructional resources designed for classroom exploration of satellite telemetry data used to understand satellite engineering and research deployed on satellites. The classroom resources are manipulatives that can prepare students to understand and utilize live telemetry data that can be captured from orbiting satellites. The collection includes

+ Satellite Antenna Rotor Simulator
+ CubeSat Classroom Simulator
+ Study Satellite "Wobble" Using Telemetry Data
+ Managing Satellite Power: A Study in Maximum Power Point Tracking
+ MAREA: Mars Lander Simulation
+ Using FUNCube to do Materials Science in the Classroom
+ Studying Satellite Rotation

In the interest of supporting teachers who want to bring space into the classroom by actively engaging students with amateur radio satellite communications, the Education Technology Program has developed some equipment resources designed with utility to support ham radio satellite operations for classroom use.

+ Satellite Tracker Interface
+ ISS Minimalist Antenna
+ ISS Minimalist Antenna, UHF Version
+ Inexpensive Broadband Preamp for Satellite Work
+ Inexpensive “WRAPS” Rotor for Satellite Work

For more information visit
http://www.arrl.org/classroom-library-satellite-communications

This information nicely supplements other ARRL Educational Information.

The ARRL Educational & Technology Program Curriculum Guide
http://www.arrl.org/curriculum-guide

Reports on classroom activities
http://www.arrl.org/reports-on-classroom-activities

Amateur Radio Curriculum Connections
http://www.arrl.org/curriculum-connections-and-benchmarks

and other articles and stories that describe the classroom activities of students
http://www.arrl.org/articles-and-stories

[ANS thanks Debra Johnson K1DMJ and the ARRL for the above information]

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The Pragmatic Guide for Using the FUNCube Materials Science Experiment in the Classroom

A guide to supplement the FUNCube Handbook (http://funcube.org.uk/), produced by AMSAT-UK, has been authored to provide some practical advice to interested hams and classroom teachers on how to access and use the Materials Science Experiment (MSE) on-board the satellite. "The Pragmatic Guide for Using the FUNCube Materials Science Experiment in the Classroom" was prepared by ARRL Education & Technology Program Director Mark Spencer WA8SME

"The Guide" can be downloaded by visiting this web page on the ARRL web site:

http://www.arrl.org/classroom-library-satellite-communications

On this page you will find the Guide and other useful information that has been developed for teachers interested in using space technology in their classrooms.

There are six chapters included in the Guide, this article provides only a summary glimpse of the material. If this summary peaks your interests, or you think the Guide may contain material that your club or local teacher could use, take a closer look.

The first chapter of the Guide includes a brief overview of the MSE and a basic refresher of thermodynamics. The primary mission of the FUNCube is education and the MSE is the focus of that mission. There are actually two different experiments included in the MSE, one using the thermally isolated aluminum bars mounted on one of the satellite faces, the other using four aluminum bars mounted as part of the satellite body in the corners of the cube. The data collected by the MSE is transmitted via a two-meter data link and decoded and displayed by an AMSAT-UK software package called the Dashboard.

Collecting the data is only part of the education mission, the other and more meaningful part is interpreting the data. Interpreting data starts with a thermodynamics refresher. In the broadest terms, thermodynamics is the study of how heat moves from one place to another. The amount of heat energy that is absorbed by, or radiated from, a material depends on material’s temperature, the temperature of the surroundings, and the emissivity of the material. The purpose of the FUNCube MSE is to allow students to witness heat transfer by radiation first hand in an environment (space) where convection and conduction are not present.

The second chapter discusses how to access the FUNCube telemetry using a typical VHF all-mode receiver (the FUNCube Dongle (SDR) is not covered in the Guide). A simple interface circuit between the receiver audio and the sound card is illustrated. There is a lengthy discussion of the minimum antenna required to receive usable FUNCube telemetry data. It is suggested that a minimum of 50 frames of telemetry data are required to develop a usable data set from directly received telemetry. The performances of various simple antennas, with and without preamps, are compared against this goal of receiving 50 frames of telemetry data.

The third chapter presents an affordable Leslie’s Cube experiment set up that you can duplicate. The Leslie’s Cube experiment allows students to explore the concept of emissivity and how that property affects the ability of a material to radiate heat energy (MSE is a space borne equivalent of the Leslie’s Cube experiment).

Alternatively, the fourth chapter presents an inexpensive MSE In-class Simulator experiment that can be easily and affordably duplicated for demonstrating the thermodynamics of heat absorption. The simulator uses simple aluminum bars that are coated with black paint and shiny aluminum foil to simulate the MSE panel bars in the FUNCube. Thermistors are mounted in the bars to measure the temperatures of the bars as they are exposed to a heat source, and then as they cool when the heat source is removed. By manipulating the heat source (i.e., turning it on and off at different rates), conditions on orbit can be simulated in the classroom and the students can evaluate the results. This installment produced the greatest surprise results of the whole Guide effort and proved to be instrumental in interpreting the real FUNCube MSE data.

The fifth chapter presents a number of examples how to interpret the MSE data, and this is the most important section of the Guide. There is a disconnect between the whole-orbit-data that is received from the FUNCube and what is expected when considering basic thermodynamics. This disconnect is evaluated, discussed, and speculated on at length in this section. Data generated from the Leslie's Cube presented in installment three, and from the MSE In-class Simulator presented in installment four are used to speculate about and try to explain the observed behavior of the MSE bars on-orbit. The content of the fifth chapter will be controversial, but at the same time thought provoking and could possibly stimulate a lot of classroom discussion.

The final chapter simply presents additional ideas and explorations that could be used in the classroom to take the FUNCube MSE to a whole new, and unintended level.

On the ARRL web page where the Guide is located, you will also find some additional material that might be of interest. For example, there are some video clips and other graphic materials that you can use to help explain how passive, fixed magnets are used in a cubesat to align the Z-axis of the satellite along the lines of the Earth's magnetosphere to optimize antenna orientation toward Earth. These visual aids might encourage students take a closer look at the telemetry data from FUNCube to see if they can detect the effects of these magnets in action.

"I know there is an ongoing discussion of the value of cubesat telemetry when compared to transponder operations," Spencer says. "[Y]ou just might find that an occasional look at the telemetry will help you better understand satellites and make you a better satellite operator." He goes on to state that the FUNcube MSE is "an exceptional educational resource," and he praised AMSAT-UK's efforts. "It's now our turn to gain as much as we can from their efforts, and I hope the Guide will help you get started."

The guide can be directly downloaded at the following link
http://www.arrl.org/files/file/ETP/FUNCube%20Guide.pdf

[ANS thanks Mark Spencer WA8SME and the ARRL for the above information]

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SA AMSAT Invites Educational Payload Proposals

The South African Amateur Radio Satellite Association SA AMSAT is

inviting schools and universities to submit proposals for an education project for inclusion in their CubeSat satellite current being developed.

SA AMSAT is building a small satellite with a 20 kHz transponder to offer amateur radio enthusiasts on the African continent an opportunity to experience space communications. "We believe this is an ideal opportunity to include an educational project that will be of interest to learners to promote Science and Technology based activities", Hannes Coetzee who leads the project said.

"Space is a magical subject and attracts the attention of many young people even those who may not have shown an interest in science as a subject at school or as a past time. Combining Amateur Radio with Space doubles the attraction."

"While the satellite will carry a telemetry beacon which report on the health of the satellite and provides interesting opportunities for learners to acquire more knowledge about space, we believe that a student designed project will add the additional magic."
Proposals for a project are invited from high Schools and Universities. The most interesting proposal received will be considered for inclusion in the satellite. The criteria for judging includes originality and once operating from space the amount of interest it is likely to draw from young people.

"It should also be noted that the project needs to be small enough to fit in with the rest of the equipment of the 10x10x10 cm CubeSat and draw as little as power as possible."

"I believe this an ideal opportunity for a school's science club to take a project into space and to be able to monitor information about their project included in the spacecraft telemetry string."

Proposals should be documented as comprehensively as possible and be emailed to SA AMSAT at saamsat(a)intekom.co.za. The closing date for proposals is 28 February 2014.

[ANS thanks SARL News in English for 1/18/2014 for the above information]

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PhoneSat 2.4 Ham Radio CubeSat

Jan Stupl provides an update on PhoneSat 2.4 which was part of the ORS3 / Elana 4 launch from the Wallops Flight Facility on November 19, 2013

By now there are TLEs at space-track for all 29 objects of that launch (NORAD ID 39380 – 39409), but only five of them have been identified on space-track.

The PhoneSat team thinks that 39381 is theirs, but 39402, 39400 and 39397 are also (less likely) possibilities. Because the satellites are still close, using the radio beacon for identification is somewhat ambiguous. Getting more observations would be very helpful for everybody on that launch.

You find all information about the 437.425 MHz PhoneSat 2.4 on the phonesat.org website and people can submit received packets as well, and comment which TLE they used. The latter is obviously important to

gain confidence on the assigned TLEs.

PhoneSat 2.4
http://www.phonesat.org/

Minotaur-1 ELaNa-4 Satellites
http://amsat-uk.org/satellites/elana-4-cubesats/

[ANS thanks Southgate ARN for the above information]

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UK CubeSat programme in New Electronics

"New Electronics" has a feature on the UK CubeSat programme and the amateur radio UKube-1 satellite which it says should be launched from Kazakhstan on March 27, 2014

The article says:

Caroline Harper is a programme manager at the UK Space Agency and one programme that comes under her wing is UKube-1.

CubeSats can also have a role in education, as Harper pointed out. “We have a payload called FUNCube, which will allow kids in schools to download real housekeeping data from the spacecraft almost in real time and to do their own experiments on that data. We hope that will encourage interest in STEM subjects.”

FUNcube was developed entirely by volunteers at the amateur radio organisation AMSAT-UK. TOPCAT, meanwhile, is a payload that will measure the regions of space just beyond the Earth’s atmosphere – the ionosphere and plasmasphere – in order to help GPS users by monitoring and subsequently reacting to variable space weather conditions that adversely affect the Global Positioning System. The payload will consist of a specialised dual frequency GPS receiver that is suitable for operation in the space environment. The development has been led by a postgraduate at the University of Bath, with support from Chronos Technology, RAL and MSSL.

Read the article at
http://tinyurl.com/ANS019-emerging-opportunities

In addition to the educational telemetry beacon the FUNcube boards on UKube-1 will also provide a 435/145 MHz linear transponder for SSB/CW communications.

UKube-1 communications subsystem:
• Telemetry downlink 145.840 MHz
• FUNcube subsystem beacon 145.915 MHz 1200 bps BPSK
• 400 mW inverting linear transponder for SSB and CW
- 435.080 -435.060 MHz Uplink
- 145.930 -145.950 MHz Downlink
• 2401.0 MHz S Band Downlink
• 437.425-437.525 MHz UKSEDS myPocketQub Downlink

March launch for UKube-1 and TechDemoSat-1
http://tinyurl.com/ANS019-UKube-1

The UK CubeSat Forum
http://amsat-uk.org/2013/12/19/announcing-the-uk-cubesat-forum/

[ANS thanks Southgate ARN for the above information]

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Peter Portanova W2JV To be Active on Satellites as W1AW/2

Peter Portanova W2JV will be active on all the amateur satellites from 1/22 - 1/28 as W1AW/2 as part of the W1AW Portable Operations, ARRL Centennial QSO Party

The ARRL Centennial "W1AW WAS" operations are taking place throughout 2014 from each of the 50 states, relocating each Wednesday (UTC) to a new pair of states (this week, Nebraska and Delaware. Listen for W1AW/0 and W1AW/3). During 2014 W1AW will be on the air from every state at least twice and from most US territories, and it will be easy to work all states solely by contacting W1AW portable operations.

[ANS thanks Peter W2JV former WB2OQQ for the above information]

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Deorbitsail CubeSat

Students and researchers at the Surrey Space Centre (SSC) in the University of Surrey, Guilford, are developing the 3U CubeSat Deorbitsail. It is planned to launch on a Dnepr rocket into a 600 km Low Earth Orbit (LEO).

The aims of the mission are:

(1) Deploy a large (5-by-5-metre) square Kapton sail.

(2) Deorbitsail is equipped with 3-axis-stabilizing attitude determination and control system. A novel capability of this system is pointing via Centre-Of-Mass / Centre-Of-Pressure (COM/COP) offset.

(3) The satellite will deorbit much more quickly than otherwise due to its deployable sail. Satellite pointing will be optimized by the attitude control system for maximum drag.

(4) The satellite will provide beacons which radio amateurs will be able to receive. The ISIS UHF/VHF radio will provide a 9600 bps BPSK downlink on 145.975 MHz.

For further information read DeOrbitSail Nanosatellite Mission
http://tinyurl.com/ANS019-deorbitsail

DeorbitSail: A Spacecraft Mission to deploy sails in Space
http://www.athena-spu.gr/projects/DeOrbit

Kapton https://en.wikipedia.org/wiki/Kapton

Deorbitsail: a deployable sail for de-orbiting by Olive R. Stohlman, University of Surrey and Vaios Lappas, University of Surrey
http://arc.aiaa.org/doi/abs/10.2514/6.2013-1806

Inspection of a co-orbital solar sail using a microthruster attitude control system
http://tinyurl.com/ANS019-microthruster-attitude

Open access to latest research output from Surrey Space Centre
http://amsat-uk.org/2013/06/19/open-access-to-ssc-research/

[ANS thanks AMSAT-UK for the above information]

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2014 Eastern VHF-UHF-Microwave Conference -- April 11-13

The 40th Eastern VHF-UHF-MW Conference will be held the weekend
before Easter. The 2014 event will be held at the same hotel as it
was in 2013.
On-line Registration will be available very soon at:
http://www.newsvhf.com/vhfconf.html

40th ANNUAL EASTERN VHF/UHF/MICROWAVE CONFERENCE
Fri./Sat./Sun. April 11-12-13 2014
BAYMONT INN & SUITES,
20 Taylor St., Manchester, CT 06042
(just a few miles northeast of Hartford, CT off I-84, at Exit 63)

FRIDAY--6pm to ?--SUPER HOSPITALITY ROOM & INDOOR SWAP

SATURDAY--8am to 5pm--Presentations & Indoor Vendors
7pm-- BANQUET BUFFET, Tom Kirby Award Presentation,
Banquet Speaker, Trivia Quiz by Dave Olean K1WHS, Door Prizes

SUNDAY
8am--SWAP/TAILGATE in Parking Lot

The Baymont Room rates will be the same as last year
......Double $69.00, Suites $99.00

Registration $25 before April 1, $30 after April 1 and at the door
Banquet $28. Must order banquet before April 1.
On-line Registration will be available very soon at:
http://www.newsvhf.com/vhfconf.html

We are still looking for your interesting presentation!
Want to give a Presentation and/or have something for the Proceedings?
Please email Paul Wade, W1GHZ, W1GHZ at arrl dot net

Sponsored by: North East Weak Signal Group (NEWS)
Questions?
Email Mark, K1MAP: map1(a)mapinternet.com
or Contact one of the Conference Co-Chairs:
Mark K1MAP, (hospitality, hotel, swaps/vendors)
Ron, WZ1V, (registration, website, test session)
Paul, W1GHZ, (presentations, proceedings)

Check: www.newsvhf.com for updates--MORE TO COME!

[ANS thanks Eastern VHF/UHF Society and the North East Weak Signal
Group for the above information]

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FUNcube-1 in Practical Wireless Magazine

In the February issue of Practical Wireless, the Data Modes column, written by Mike Richards G4WNC, devotes three pages to describing how to receive the signals from the FUNcube-1 (AO-73) satellite

The World of VHF column by Tim Kirby G4VXE also covers FUNcube-1 and what is believed to be the first contact between Cuba and the UK on the FO-29 satellite. The contact took place on October 19, 2013 between Hector Martinez CO6CBF and Peter Atkins G4DOL.

It is understood that postal copies of Practical Wireless can be purchased using a Debit or Credit card, by ringing +44 (0)1202 751611 Monday – Thursday 8.30am – 4.00pm.

Practical Wireless
http://www.pwpublishing.ltd.uk/?page_id=632

G4WNC Data Modes Yahoo Group
http://groups.yahoo.com/group/datamodes

[ANS thanks Southgate ARN for the above information]

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ARISS News

+ A Successful contact was made between Istituto Tecnico Industriale "Galileo Ferraris", San Giovanni  Valdarno, Italy and Astronaut Koichi Wakata KC5ZTA using callsign IOR4ISS. The contact began Wed 2014-01-08 12:21 UTC and lasted about nine and a half minutes. Contact was direct via IQ5GX. ARISS Mentor was IKØWGF.

The Technical Institute "Galileo Ferraris" is active on the territory of the Arno Valley since 1979 and has trained over the years the engineers of the many industrial enterprises in the area. The technical institute in fact offers a solid general education and training of scientific and technical basis necessary for both a rapid entry into the world of work and the professions and for the continuation of studies at university . In particular, enables the student to face the entrance test for the various scientific disciplines . Its strength lies in teaching laboratory accompanied by a solid theoretical and scientific .
Branches of study offered the institute is currently divided into the following specializations:
o Electronics and electrical engineering.
o Chemistry, Materials and Biotechnology
o Data processing and telecommunications
The time is for all specializations of 32 hours per week , spread over four days per week of five hours (from 8.10 am to 13.10) and two days a week for six hours (from 8.10 am to 14.10 ).
The school is equipped with several laboratories and a large gym. Among these, for the two years, we have the laboratories of Physics, Chemistry, Drawing- CAD, Computer Science, for the three years, Chemistry, Electronics, Electrical Engineering, Computer Science, Mathematics, Technology Design and Planning, Automatic Systems, Information systems .
In addition, the active school every year internships at companies in the area and technical projects in cooperation with such companies.

+ A Successful contact was made between Zespól Szkól Technicznych, Ostrów Wielkopolski, Poland and Astronaut Koichi Wakata KC5ZTA using callsign OR4ISS. The contact began Wed 2014-01-08 10:43:57 UTC and lasted about nine and a half minutes. Contact was direct via

SP3POW. ARISS Mentors were SP3QFE and IN3GHZ.

The Centre of Technical Schools in Ostrów Wielkopolski is a school which educates future electronics and mechatronics engineers, computer scientists and renewable energy specialists.

Their school has been cooperating with Polish universities, electronic and mechatronic industrial plants and schools in Germany and the UK, which brings very good results. Thanks to the participation in the ARISS program their school has partnered with the Space Research Centre of the Polish Academy of Sciences in Warsaw.

Their students participate in various forms of extra-curricular activities which develop their passions and interests. As a result, they have created many interesting electronic and mechatronic devices. For example, some of the recent constructions include fpv plane, a quadrocopter, a stratospheric balloon capsule, some amateur radio equipment and many more.

Currently, the school has 800 students aged 16 - 19 years.

The Center of Technical Schools has invited its younger mates (students 13 - 15 years old) from Junior High School No. 1 named of Polish Nobel laureates in Ostrów Wielkopolski and 10 - 12 year-old students from Pope John Paul II Primary School in Lamki so that they all can participate in the ARISS program.

Preparations for the ARISS contact began in late 2011. A series of amateur radio classes were carried out so that students could learn the rules of work on the radio. It was a very interesting experience to carry out radio communications through amateur radio satellites and to take photos from NOAA satellites. In addition, we monitored other radio signals from space. Most emotions were from the radio contact with the ISS in the APRS system and from listening to ARISS contacts of other schools in Poland and Europe.

The schools participating in the ARISS program organized a series of events to promote various fields of science, particularly those that are the most relevant for the development of astronautics.

+ A Successful contact was made between Berkeley Middle School, Williamsburg, VA, USA and Astronaut Michael S. Hopkins KF5LJG using callsign NA1SS. The contact began 2014-01-08 18:33 UTC and lasted about nine and a half minutes. Contact was direct via K4RC. ARISS Mentor was K4SQC.

Berkeley Middle School, Williamsburg, VA is one of three middle schools. There are thirty-six core teachers, sixteen elective teachers, a gifted and talented teacher, reading specialist, math specialist, and ten special education teachers. Additionally, there are three administrators, two school counselors, a Student Advancement Coach, and media specialist along with support staff. The student to teacher ratio is 28:1.

Uniquely, the school is one of two located in the City of Williamsburg, serving students in the city and county.  Over the past few years, enrollment has steadily increased, which is a direct reflection of the growth within the community.  At the end of September 2013, the enrollment was 913 with an even distribution among its three grade levels (6-8). Berkeley's student population is approximately 60 percent white, 30 percent black, and 10 percent identify as other ethnicities such as American Indian, Asian, Hispanic, etc. Nearly 30 percent of the student population receives special education services, close to 20 percent are identified as

gifted and talented, and less than 5 percent identify as English Language Learners (ELL). At Berkeley, 41 percent of the students qualify for federal free or reduced lunch.

In partnership with parents and community members, Berkeley strives to foster a safe, caring and supportive learning environment that: a) knows its population, b) maintains a culture of continuous improvement, c) maximizes learning time, and d) remains focused and determined to close the achievement gap.

+ A Successful contact was made between Collège Les Gondoliers, La Roche sur Yon, France and Astronaut Koichi Wakata KC5ZTA  using callsign OR4ISS. The contact began 2014-01-17 09:51 UTC and lasted about nine and a half minutes. Contact was direct via F6KUF/p. ARISS Mentor was F6ICS.

Les Gondoliers Secondary School, with its 500 pupils -aged 11-15- is located in Vendée, 70 km south of the city of Nantes, where famous Jules Verne author was born . At the end of the last year, the pupils take an exam called "Diplôme National du Brevet". Their Astronomy Club has resumed its activities this year with the objective to enter in contact with the ISS. The starting point has been the visit of the exhibition "Voyages planétaires" (Planetary spaceflights), in Nantes, during the International Planetary Science Congress. Various astronomy and amateur radio activities were organized, with the help of members of the association of "radioamateurs of Vendée", who came to their school to display their activities and provide students with the tools that were necessary to get in contact with the ISS.

+ A Successful contact was made between Wallingford STEM Academy/Town of Wallingford, Wallingford, CT, USA and Astronaut Koichi Wakata KC5ZTA using callsign NA1SS. The contact began 2014-01-18 15:18 UTC and lasted about nine and a half minutes. Contact was telebridged via K6DUE. ARISS Mentor was W2CYK.

Wallingford STEM Academy is a community based and family oriented organization that excites students about science, technology, engineering and mathematics.  This program, previously known as the Young Astronaut Club of Wallingford and founded in 2000, has been providing STEM enrichment for students in grades 4 through 8 for over thirteen years through Wallingford Youth and Social Services.

The Wallingford STEM Academy is a collaborative partnership between the Spanish Community of Wallingford (SCOW), the Town of Wallingford Youth and Social Services Department (WYSS), the Wallingford Education Association (WEA). STEM Academy branches in Wallingford, and Hamden, are the flagship programs for CEA's STEM Education Initiative. They currently serve the Spanish Community of Wallingford (SCOW) and the general population.  40% of their STEM Enrichment Academy is comprised of students from the Spanish community and 40% of our students are girls interested in STEM education.  Their weekly meetings are conducted at the Spanish Community of Wallingford Great Room and in their STEM Education Classroom next to SCOW.

Since 2005, a companion project to Wallingford STEM Enrichment Academy is the Wallingford Family Science and STEM Night Series.  At least twice a month, they organize and implement family oriented Science and STEM Family Nights in Wallingford.  These events range from evening programs, daytime vacation programs, hands-on investigations, assembly style programs, and night sky observations. The purpose of this organization is to deepen student, and family, understanding of STEM concepts as a compliment to an existing inquiry based STEM curriculum in Wallingford.  Their major funders for both STEM Academy and Wallingford Family STEM Nights are the Wallingford

Rotary Club's Wallingford Foundation, 3M Charitable Contributions and
the Connecticut Education Association.

Upcoming ARISS Contact Schedule

Marymount University (Fort Belvoir Elem.), Arlington, VA,
telebridge via W6SRJ
Contact is a go for: Fri 2014-01-24  15:06:04 UTC

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above
information]

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Satellite Shorts From All Over

+ Cyber-security: Small satellite dish systems called ripe for hacking

  Thousands of small satellite dish-based computer systems that
  transmit often-sensitive data from far flung locations worldwide –
  oil rigs, ships at sea, banks, and even power grid substations – are
  at high risk of being hacked, including many in the United States, a
  new cyber-security report has found.

  Read the full Christian Science Monitor article at:
  http://tinyurl.com/ANS019-cybersecurity

  VSAT terminals are opened for targeted cyber attacks
  http://intelcrawler.com/about/press05

  [ANS thanks Stephen G7VFY and Southgate ARN for the above
   information]

+ Japan to test 'magnetic net' that can fish out floating space junk

  The Japan Aerospace Exploration Agency (Jaxa) is teaming up with a
  company that manufactures fishing equipment to create a net that
  will sweep the heavens of the man-made debris orbiting our planet.

  See story at
  http://tinyurl.com/ANS019-magnetic-net

  [ANS thanks South China Morning Post for the above information]

+ SatMagazine January 2014 Edition features The Small Satellite
  Surge... Note AMSAT's own Nick Pugh's picture on page 30.

  SatMagazine is available online http://www.satmagazine.com/

+ January 2014 Edition of MilsatMagazine is now online
  http://www.milsatmagazine.com/

+ Andy Thomas G0SJF describes lessons learned about using dashboard
  software etc. from the perspective of an interested science teacher
  using an AMSAT-UK FUNcube Dongle Software Defined Radio (SDR).

  He says: For those of us about to receive the Kicksat Sprites (when
  launched), and others using RTL dongles, the experience may be
  useful.

  https://sites.google.com/site/andythomasorg/funcube

[ANS thanks Andy G0SJC and AMSAT-UK for the above information]

+ January 432 and Above EME Newsletter

The January issue of the free amateur radio 432 MHz and Above EME Newsletter is now available

The Word and PDF formats the newsletter can be downloaded from http://www.nitehawk.com/rasmit/em70cm.html

Previous newsletters are at http://www.nitehawk.com/rasmit/em70cm_arc.html

[ANS thanks Southgate ARN for the above information]

+ "Wake Up, Rosseta"
Want to be one of those who helps to "wake up" a sleeping comet-chasing ESA space probe?? Well you can. See information at link below:

http://www.cnn.com/2014/01/17/tech/rosetta-comet-chaser/

[ANS thanks Bill Pasternak, WA6ITF and ARNewsline for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, KC8YLD
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